



PRELIMINARY
EXISTING AND FORECAST I-5 TRAVEL DEMANDS
FOR INTERNAL USE ONLY
February 27, 2006

PURPOSE

The purpose of this paper is to outline year 2005 demand traffic volumes, year 2005 origin-destination patterns, and to provide a preliminary and planning level estimation of year 2030 demand traffic volumes considering a Build condition in the Bridge Influence Area.

It must be noted that the year 2030 demand traffic volumes contained as a part of this memorandum were simply developed by factoring the year 2005 traffic volumes and that new estimates of year 2030 travel demands will be developed this spring and summer for a number of alternatives. The year 2030 estimates provided herein should be used carefully.

Year 2005 Demand Volumes

Ramp terminal and ramp-to-ramp (i.e., ramps not controlled by intersection traffic control) counts were the basis for the year 2005 demand volumes. Counts at eighty-four on- and off-ramps were initially summarized on a 24-hour basis. These counts were compared with historical counts and then balanced throughout the I-5 corridor.

Peak period counts for both the northbound and southbound directions of I-5 were then summarized. To account for congestion and oversaturated conditions, peak period counts at some locations were increased to estimate demand volumes (a traffic count taken at an oversaturated location is limited by the capacity of the facility and therefore is actually a service volume and not a demand volume). The demand volume for oversaturated locations is the service volume (actual volume counted) plus the number of vehicles that are queued upstream and would have crossed this point during the analysis period if there were not congestion.

Therefore, the year 2005 demand volumes were estimated based upon existing traffic counts and observed queue lengths at different existing bottleneck locations throughout the I-5 corridor. The majority of ramp and mainline counts in the off-peak directions are equivalent to the year 2005 demand volumes since there is not much significant queuing or congestion during these time periods. Refer to **Figures 1 and 2** for year 2005 demand volumes.

Year 2005 Origin-Destination Volumes

License plate information was collected for vehicles using the on- and off-ramps within the BIA in the peak direction during peak periods only (i.e., southbound during the morning peak period and northbound during the afternoon/evening peak period). Almost 30,000 license plates were recorded and a database

was created to cross-reference license plate captures. The origin-destination counts were compared with the year 2005 traffic counts and then balanced throughout the BIA. The balancing methodology was applied to the matrix (on-ramp versus off-ramps). The matrix was balanced based upon both on- and off-ramp overall percentages. As shown in **Tables 1 and 2**, the data has been summarized by both origin ramp and destination ramp.

As an example of a specific origin pattern, of all of the traffic entering northbound I-5 via the Hayden Island on-ramp, approximately 29% exit to SR-14, 6% exit to City Center, 22% exit to Mill Plain/4th Plain, 26% exit to SR-500/39th Street, and the remaining 18% continue on I-5 north of the BIA.

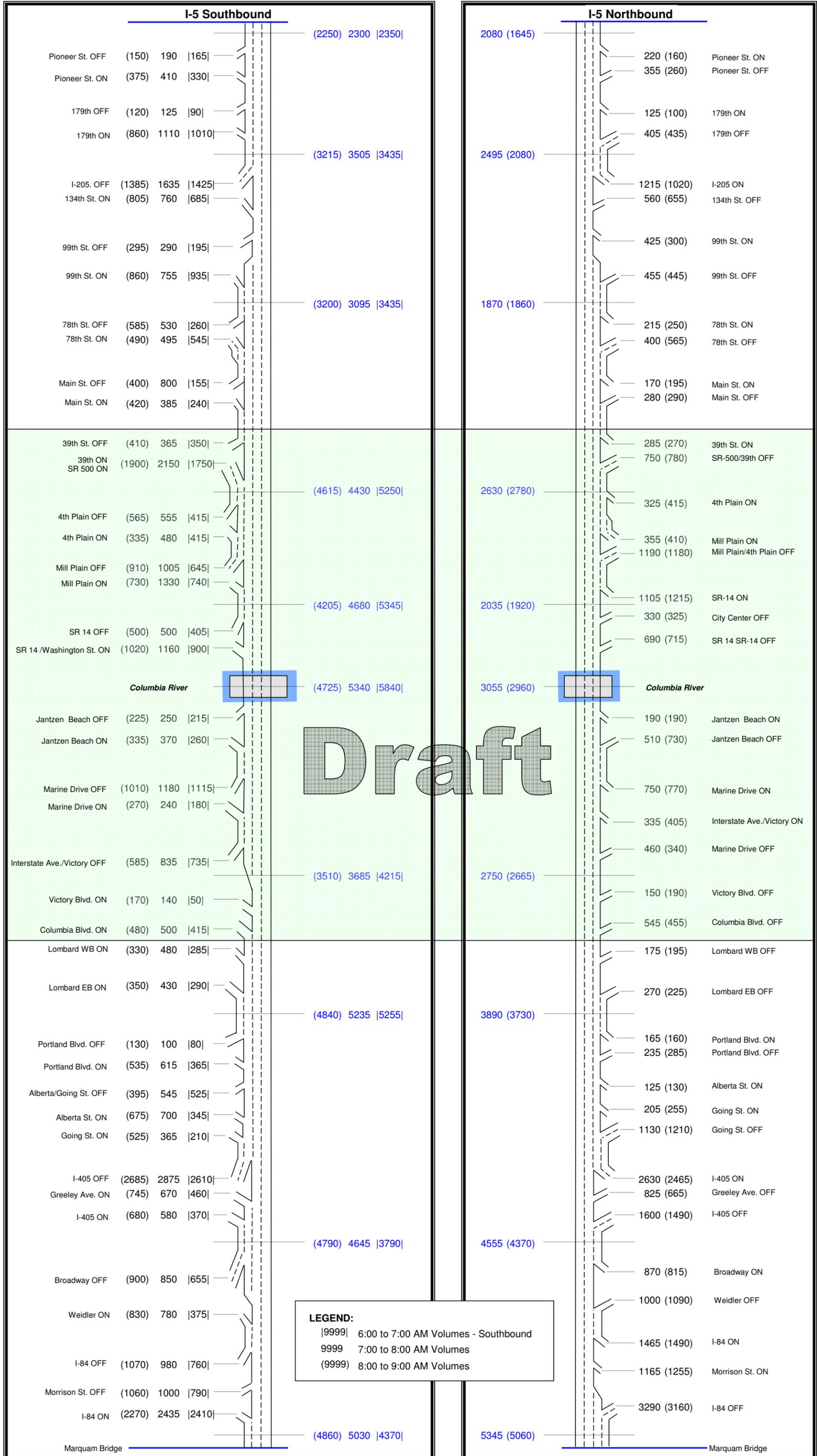
Year 2030 Build Alternative Demand Volumes

The preliminary year 2030 Build demand traffic volumes were estimated using the year 2005 demand volumes and adding to these the post-processed traffic growth estimated in the I-5 Trade Partnership Study. This growth volume was estimated by initially subtracting the post-processed existing conditions demand volume from the post-processed Build Alternative (six-lane I-5 mainline outside of BIA, ten-lane I-5 mainline within BIA including river crossing, and LRT extended from Expo Park & Ride to Clark College) demand volume at the Interstate Bridge. After adding this volume to the year 2005 demand volume at the Interstate Bridge, the change in traffic growth was then distributed north and south to all of the on- and off-ramps within the BIA based upon ramp volume percentages. **Figure 3** summarizes the peak period and peak direction year 2030 planning level demand volumes within the BIA.

It must be noted that the year 2030 demand traffic volumes contained as a part of this memorandum were simply developed by factoring the year 2005 traffic volumes and that new estimates of year 2030 travel demands will be developed this spring and summer for a number of alternatives. The year 2030 estimates provided herein should be used carefully.

G:\DEA\WDOT00000330\0600INFO\TT\Trans Data Collection\Count Data\CRC Volume Development DRAFT 022706.doc

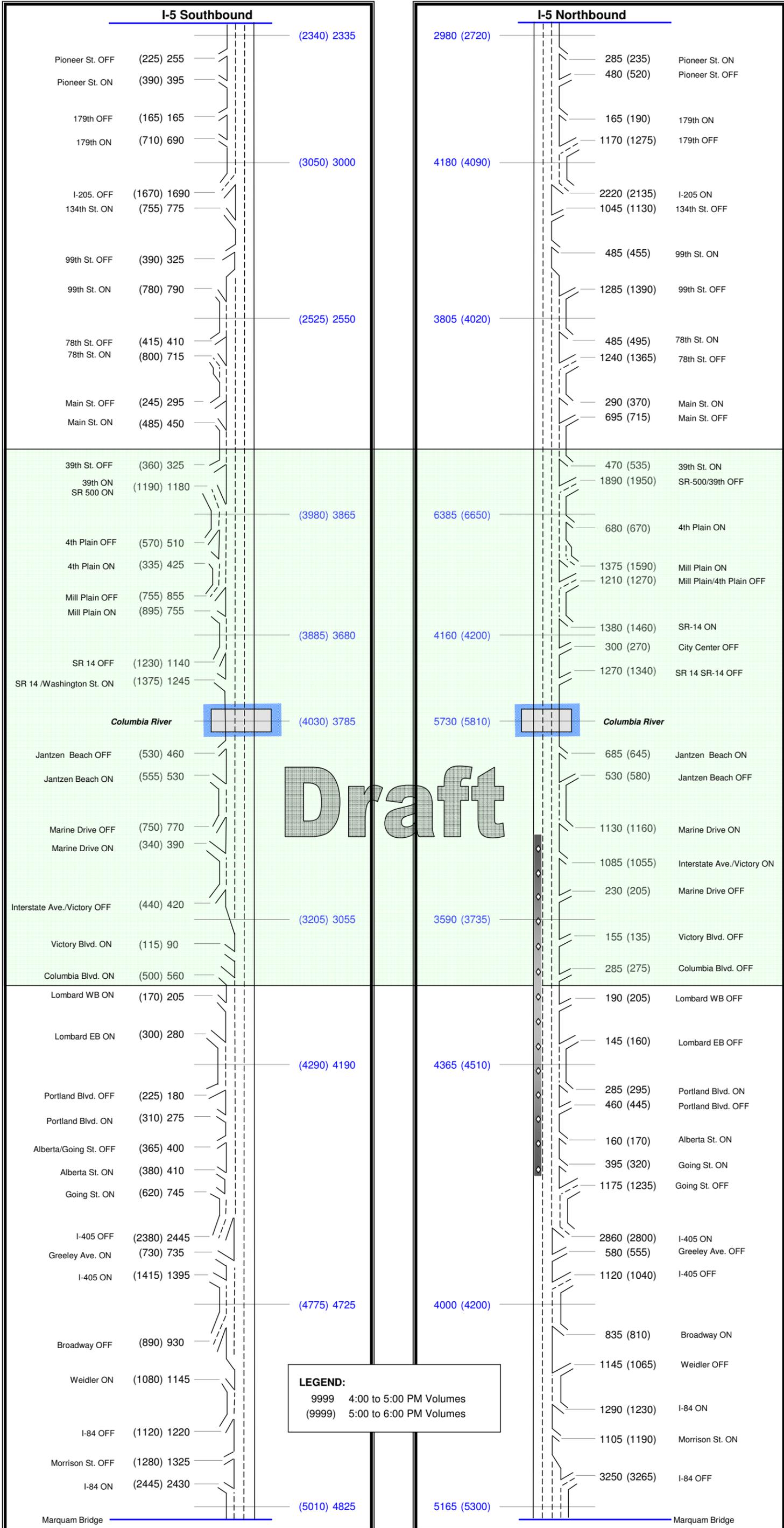
Figure 1 - I-5 Corridor - CRC - AM Peak Hour Demand Volumes



Draft

LEGEND:
 [9999] 6:00 to 7:00 AM Volumes - Southbound
 9999 7:00 to 8:00 AM Volumes
 (9999) 8:00 to 9:00 AM Volumes

Figure 2 - I-5 Corridor - CRC - PM Peak Hour Demand Volumes



Draft

LEGEND:
 9999 4:00 to 5:00 PM Volumes
 (9999) 5:00 to 6:00 PM Volumes

Revised: 2/3/2006

TABLE 1: 2005 AM AND PM ORIGIN BASED O-D TABLE (Total All Vehicles)
 Revision Date: 2-08-06

NB I-5 PM 2 HOUR FLOW RATES BY ROUTE AND ENTRY POINT

Entry and Exit Locations	Gate	Volumes	%
	(From - To)		
NB I-5 Input Volume			
(South of Columbia Blvd Off-Ramp)	1	8177	100%
Columbia Blvd NB OFF	1-2	560	6.8%
Victory Blvd NB OFF	1-3	290	3.5%
Marine Dr NB OFF	1-4	435	5.3%
Hayden Island NB OFF	1-7	580	7.1%
SR-14 NB OFF	1-9	1063	13.0%
City Center NB OFF	1-10	237	2.9%
Mill Plain/4th Plain Blvd NB Off	1-12	695	8.5%
SR-500/39th Street NB Off	1-15	556	6.8%
NB I-5 North of 39th St NB ON	1-17	3761	46.0%
Victory/Denver Avenue NB ON Ramp Input Volume	5	2140	100%
Hayden Island NB OFF	5-7	243	11.4%
SR-14 NB OFF	5-9	553	25.8%
City Center NB OFF	5-10	122	5.7%
Mill Plain/4th Plain Blvd NB Off	5-12	441	20.6%
SR-500/39th Street NB Off	5-15	428	20.0%
NB I-5 North of 39th St NB ON	5-17	353	16.5%
Marine Drive NB ON Ramp Input Volume	6	2289	100%
Hayden Island NB OFF	6-7	286	12.5%
SR-14 NB OFF	6-9	611	26.7%
City Center NB OFF	6-10	135	5.9%
Mill Plain/4th Plain Blvd NB Off	6-12	476	20.8%
SR-500/39th Street NB Off	6-15	481	21.0%
NB I-5 North of 39th St NB ON	6-17	300	13.1%
Hayden Island NB ON Ramp Input Volume	8	1330	100%
SR-14 NB OFF	8-9	383	28.8%
City Center NB OFF	8-10	76	5.7%
Mill Plain/4th Plain Blvd NB Off	8-12	294	22.1%
SR-500/39th Street NB Off	8-15	339	25.5%
NB I-5 North of 39th St NB ON	8-17	238	17.9%
SR-14 WB to I-5 NB ON Ramp Input Volume	11	2841	100%
Mill Plain/4th Plain Blvd NB Off	11-12	574	20.2%
SR-500/39th Street NB Off	11-15	543	19.1%
NB I-5 North of 39th St NB ON	11-17	1724	60.7%
Mill Plain Blvd NB ON Ramp Input Volume	13	2965	100%
SR-500/39th Street NB Off	13-15	981	33.1%
NB I-5 North of 39th St NB ON	13-17	1984	66.9%
4th Plain Blvd NB ON Ramp Input Volume	14	1350	100%
SR-500/39th Street NB Off	14-15	512	37.9%
NB I-5 North of 39th St NB ON	14-17	838	62.1%
39th St. NB ON Ramp Input Volume	16	1005	100%
NB I-5 North of 39th St NB ON	16-17	1005	100.0%

SB I-5 AM 2 HOUR FLOW RATES BY ROUTE AND ENTRY POINT

Entry and Exit Locations	Gate	Volumes	%
	(From - To)		
SB I-5 Input Volume			
(North of SR-500)	18	6450	100%
39th St SB OFF	18-19	529	8.2%
4th Plain Blvd SB OFF	18-21	555	8.6%
Mill Plain Blvd SB OFF	18-23	909	14.1%
SR-14 SB OFF	18-25	432	6.7%
Hayden Island SB OFF	18-27	200	3.1%
Marine Dr SB OFF	18-29	581	9.0%
Denver/Victory Blvd SB OFF	18-31	432	6.7%
SB Mainline South of Columbia Blvd SB ON	18-34	2812	43.6%
SR 500/39th St SB ON Ramp Input Volume	20	3898	100%
4th Plain Blvd SB OFF	20-21	415	10.6%
Mill Plain Blvd SB OFF	20-23	698	17.9%
SR-14 SB OFF	20-25	129	3.3%
Hayden Island SB OFF	20-27	70	1.8%
Marine Dr SB OFF	20-29	515	13.2%
Denver/Victory Blvd SB OFF	20-31	293	7.5%
SB Mainline South of Columbia Blvd SB ON	20-34	1778	45.6%
4th Plain Blvd SB ON Ramp Input Volume	22	896	100%
Mill Plain Blvd SB OFF	22-23	43	4.8%
SR-14 SB OFF	22-25	159	17.7%
Hayden Island SB OFF	22-27	59	6.6%
Marine Dr SB OFF	22-29	175	19.5%
Denver/Victory Blvd SB OFF	22-31	161	18.0%
SB Mainline South of Columbia Blvd SB ON	22-34	299	33.4%
Mill Plain Blvd SB ON Ramp Input Volume	24	2070	100%
SR-14 SB OFF	24-25	184	8.9%
Hayden Island SB OFF	24-27	54	2.6%
Marine Dr SB OFF	24-29	402	19.4%
Denver/Victory Blvd SB OFF	24-31	174	8.4%
SB Mainline South of Columbia Blvd SB ON	24-34	1256	60.7%
SR-14/City Center ON Ramp Input Volume	26	2060	100%
Hayden Island SB OFF	26-27	82	4.0%
Marine Dr SB OFF	26-29	480	23.3%
Denver/Victory Blvd SB OFF	26-31	231	11.2%
SB Mainline South of Columbia Blvd SB ON	26-34	1267	61.5%
Hayden Island SB ON Ramp Input Volume	28	631	100%
Marine Dr SB OFF	28-29	144	22.8%
Denver/Victory Blvd SB OFF	28-31	178	28.2%
SB Mainline South of Columbia Blvd SB ON	28-34	309	49.0%
Marine Dr SB ON Ramp Input Volume	30	420	100%
Denver/Victory Blvd SB OFF	30-31	102	24.3%
SB Mainline South of Columbia Blvd SB ON	30-34	318	75.7%
Victory Blvd SB ON Ramp Input Volume	32	190	100%
SB Mainline South of Columbia Blvd SB ON	32-34	190	100.0%
Columbia Blvd SB ON Ramp Input Volume	33	915	100%
SB Mainline South of Columbia Blvd SB ON	33-34	915	100.0%

Draft

TABLE 2: 2005 AM AND PM DESTINATION BASED O-D TABLE (Total All Vehicles)
 Revision Date: 2-08-06

NB I-5 PM 2 HOUR FLOW RATES BY ROUTE AND ENTRY POINT

Entry and Exit Locations	Gate		Volumes	%
	(From - To)			
Columbia Blvd NB OFF Ramp Volume	2	560	100%	
NB I-5 South of Columbia Blvd NB OFF	1-2	560	100.0%	
Victory Blvd NB OFF Ramp Volume	3	290	100%	
NB I-5 South of Columbia Blvd NB OFF	1-3	290	100.0%	
Marine Dr NB OFF Ramp Volume	4	435	100%	
NB I-5 South of Columbia Blvd NB OFF	1-4	435	100.0%	
Hayden Island NB OFF Ramp Volume	7	1109	100%	
NB I-5 South of Columbia Blvd NB OFF	1-7	580	52.3%	
Victory/Denver Ave NB ON	5-7	243	21.9%	
Marine Dr NB ON	6-7	286	25.8%	
I-5 NB to SR-14 EB Ramp Volume	9	2610	100%	
NB I-5 South of Columbia Blvd NB OFF	1-9	1063	40.7%	
Victory/Denver Ave NB ON	5-9	553	21.2%	
Marine Dr NB ON	6-9	611	23.4%	
Hayden Island NB ON	8-9	383	14.7%	
City Center NB OFF Ramp Volume	10	570	100%	
NB I-5 South of Columbia Blvd NB OFF	1-10	237	41.6%	
Victory/Denver Ave NB ON	5-10	122	21.4%	
Marine Dr NB ON	6-10	135	23.7%	
Hayden Island NB ON	8-10	76	13.3%	
Mill Plain/4th Plain Blvd NB Off	12	2480	100%	
NB I-5 South of Columbia Blvd NB OFF	1-12	695	28.0%	
Victory/Denver Ave NB ON	5-12	441	17.8%	
Marine Dr NB ON	6-12	476	19.2%	
Hayden Island NB ON	8-12	294	11.9%	
SR-14 WB to I-5 NB ON	11-12	574	23.1%	
SR-500/39th Street NB Off	15	3840	100%	
Mainline NB south of Columbia Blvd.	1-15	556	14.5%	
Victory/Denver Avenue NB On	5-15	428	11.1%	
Marine Drive NB On	6-15	481	12.5%	
Hayden Island NB On	8-15	339	8.8%	
SR-14 NB On	11-15	543	14.1%	
Mill Plain Blvd. NB On	13-15	981	25.5%	
4th Plain Blvd. NB On	14-15	512	13.3%	
NB I-5 Output Volume (North of 39th St. NB On-Ramp)	17	10203	100%	
Mainline NB south of Columbia Blvd.	1-17	3761	36.9%	
Victory/Denver Avenue NB On	5-17	353	3.5%	
Marine Drive NB On	6-17	300	2.9%	
Hayden Island NB On	8-17	238	2.3%	
SR-14 NB On	11-17	1724	16.9%	
Mill Plain Blvd. NB On	13-17	1984	19.4%	
4th Plain Blvd. NB On	14-17	838	8.2%	
39th Street NB On	16-17	1005	9.9%	

SB I-5 AM 2 HOUR FLOW RATES BY ROUTE AND ENTRY POINT

Entry and Exit Locations	Gate		Volumes	%
	(From - To)			
39th St SB OFF Ramp Volume	21	529	100%	
SB Mainline North of SR-500	20-21	529	100.0%	
4th Plain Blvd SB OFF Ramp Volume	23	970	100%	
SB Mainline North of SR-500	20-23	555	57.2%	
SR-500/39th St SB ON	22-23	415	42.8%	
Mill Plain Blvd SB OFF Ramp Volume	25	1650	100%	
SB Mainline North of SR-500	20-25	909	55.1%	
SR-500/39th St SB ON	22-25	698	42.3%	
4th Plain Blvd SB ON	24-25	43	2.6%	
I-5 SB to SR-14 EB OFF Ramp Volume	27	904	100%	
SB Mainline North of SR-500	20-27	432	47.8%	
SR-500/39th St SB ON	22-27	129	14.3%	
4th Plain Blvd SB ON	24-27	159	17.6%	
Mill Plain Blvd SB ON	26-27	184	20.4%	
Hayden Island SB OFF Ramp Volume	29	465	100%	
SB Mainline North of SR-500	20-29	200	43.0%	
SR-500/39th St SB ON	22-29	70	15.1%	
4th Plain Blvd SB ON	24-29	59	12.7%	
Mill Plain Blvd SB ON	26-29	54	11.6%	
SR-14/City Center SB ON	28-29	82	17.6%	
Marine Dr SB OFF Ramp Volume	31	2297	100%	
SB Mainline North of SR-500	20-31	581	25.3%	
SR-500/39th St SB ON	22-31	515	22.4%	
4th Plain Blvd SB ON	24-31	175	7.6%	
Mill Plain Blvd SB ON	26-31	402	17.5%	
SR-14/City Center SB ON	28-31	480	20.9%	
Hayden Island SB ON	30-31	144	6.3%	
Denver/Victory Blvd SB OFF Ramp Volume	33	1571	100%	
SB Mainline North of SR-500	20-33	432	27.5%	
SR-500/39th St SB ON	22-33	293	18.7%	
4th Plain Blvd SB ON	24-33	161	10.2%	
Mill Plain Blvd SB ON	26-33	174	11.1%	
SR-14/City Center SB ON	28-33	231	14.7%	
Hayden Island SB ON	30-33	178	11.3%	
Marine Dr SB ON	32-33	102	6.5%	
SB I-5 Output Volume (South of Columbia Blvd SB On-Ramp)	36	9144	100%	
SB Mainline North of SR-500	20-36	2812	30.8%	
SR-500/39th St SB ON	22-36	1778	19.4%	
4th Plain Blvd SB ON	24-36	299	3.3%	
Mill Plain Blvd SB ON	26-36	1256	13.7%	
SR-14/City Center SB ON	28-36	1267	13.9%	
Hayden Island SB ON	30-36	309	3.4%	
Marine Dr SB ON	32-36	318	3.5%	
Victory Blvd SB ON	34-36	190	2.1%	
Columbia Blvd SB ON	35-36	915	10.0%	

Draft

Figure 3 - I-5 Corridor - 2030 Preliminary Peak Period Peak Direction Demand Vols

